DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name:	Monarch Tile (Marshall Holdings)
Facility Address:	333 Marshall Street, Marshall Texas, 75670
Facility EPA ID #:	TXD008041048

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

X If yes - check here and continue with #2 below.

____ If no - re-evaluate existing data, or

____ if data are not available skip to #6 and enter"IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			Lead, Cadmium, Arsenic
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)	X			Lead, Cadmium, Arsenic
Surface Water	X			Lead, Cadmium, Arsenic, Selenium
Sediment	X			Lead, Cadmium, Arsenic
Subsurf. Soil (e.g., >2 ft)	X			Lead, Cadmium, Arsenic
Air (outdoors)		X		

____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

X If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Background: Ceramic tiles were manufactured at the facility from 1965 to 1997. The facility used a lead-based material to reduce the melting point of their glazes for firing in high temperature kilns. The facility generated hazardous waste sludge (D008) until 1987 and disposed of it in unlined surface impoundments (SI). A permitted hazardous waste landfill was built on-site in 1989. The sludges were dredged out of the SI and placed into the hazardous waste landfill. A Post-Closure Care Permit has been in place, but it may not contain the appropriate sampling requirements to effectively monitor the constituents of concern (COC's) at the facility. The Post-Closure Care Permit has expired and the facility is currently operating without a permit. The TCEQ Enforcement/Legal Division in Austin is in the process of re-issuing a Post-Closure Care Permit through TCEQ's enforcement process. There are several clay tile piles (up to 20 feet high) across the site with numerous erosion channels and seeps that discharge into drainage ditches. There are four monitoring wells associated with the hazardous waste landfill. These are sampled annually, but only for lead. The down-gradient monitoring well has had a pH of 2.5. There is not any other ground water monitoring occurring at the facility. The EPA and TCEQ conducted a Site Visit on May 6, 2004 and a sampling inspection on November 16, 2004. EPA also visited the Site on April 12, 2005 to install warning signs. Marshall Wood Preserving, a Texas

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Superfund Site is located on the southern property boundary. The internet link to the TCEQ website is: *http://www.tnrcc.state.tx.us/permitting/remed/superfund/marshall.html*

Groundwater: Most of the site is fenced and has limited accessibility. The hazardous waste landfill is fenced and locked. The EPA and TCEQ conducted a Site Visit on May 6, 2004 and a sampling inspection on November 16, 2004. EPA also visited the Site on April 12, 2005 to install warning signs. The four ground water wells (3 down-gradient and 1 up-gradient) monitoring the hazardous waste landfill were sampled on November 16, 2004 during a joint EPA/TCEQ Comprehensive Ground Water Monitoring Evaluation (CME) sampling inspection at the facility. The analytical results from the ground water monitoring wells indicate that the COCs are below any action levels for public drinking water supplies. However, the four wells only monitor the existing hazardous waste landfill. Ground water monitoring is not occurring at the rest of the facility. Additional monitoring is warranted near the old unlined sludge surface impoundments. Samples of surface water were collected from seeps emanating from the old clay tile piles in the vicinity of the of the old surface impoundments during the CME. These samples had elevated lead, arsenic and selenium levels. The interaction between the contaminated soil, ground water, and surface water/seeps is unknown at this time.

Air (indoors): There are not any structures located over the lead contaminated areas. There are not any volatile organic COCs associated with the site.

Surface Soil: Most of the site is fenced and has limited accessibility. The EPA and TCEQ conducted a Site Visit on May 6, 2004 and a sampling inspection on November 16, 2004. EPA also visited the Site on April 12, 2005 to install warning signs. The security gates were always closed and locked to limit accessibility. Samples of surficial soils were not collected during the CME. However, this is not a typical site with normal "surface soils". The entire site is covered with broken clay tiles. The depth of the clay tiles ranges from several inches to over 20 feet. Numerous erosion channels bisect these clay tiles and may be in contact with the sludges or contaminated soils from the old surface impoundments.

Surface Water: Most of the site is fenced and has limited accessibility. The EPA and TCEQ conducted a Site Visit on May 6, 2004 and a sampling inspection on November 16, 2004. EPA also visited the Site on April 12, 2005 to install warning signs. There are numerous seeps emanating from the clay tile piles across the facility. In addition, a drainage ditch runs parallel to the westernmost property boundary. Another drainage ditch also borders the southern property boundary. These ditches converge near the southwest corner of the property. From there, the ditches drains toward Marshall Wood Preserving Superfund Site. Water flow in the ditches is contingent upon rainfall events. During the November 2004 sampling event, concentrations in the surface water ranged from non-detect to 0.143 mg/l for Arsenic; 0.637 mg/l for Lead; and 0.118 mg/l for Selenium. These values exceed health based risk levels.

Sediment: Most of the site is fenced and has limited accessibility. The EPA and TCEQ conducted a Site Visit on May 6, 2004 and a sampling inspection on November 16, 2004. EPA also visited the Site on April 12, 2005 to install warning signs. Sediment may be found in the numerous seeps emanating from the clay tile piles across the facility. In addition, a drainage ditch runs parallel to the westernmost property boundary. Another drainage ditch also borders the southern property boundary. These ditches contain varying quantities of sediments. The ditches converge near the southwest corner of the property. From there, they drain towards Marshall Wood Preserving Superfund Site. During the November 2004 sampling event, sediment samples were collected from both seeps and drainage ditches. Analytical results for Cadmium ranged from non-detect to 47 mg/kg. TCEQ lead analytical concentrations in the sediment samples ranged from 25 mg/kg to a high of 3,920 mg/kg. Analytical results from several of the samples for lead exceeded both residential and industrial clean-up standards.

Subsurface Soil: Most of the site is fenced and has limited accessibility. The EPA and TCEQ conducted a Site Visit on May 6, 2004 and a sampling inspection on November 16, 2004. EPA also visited the Site on April 12,

2005 to install warning signs. Leaching from the surface impoundments potentially affected a large volume of subsurface soil. These soils may have contamination of lead and potentially arsenic.

Air (outdoor): There are not any outdoor air issues.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	No	No	No	No	No	No	No
Air (indoors)	--	--	--	--	--	--	--
Soil (surface, e.g., <2 ft)	No	No	No	No	No	No	No
Surface Water	No	No	No	No	Yes	No	No
Sediment	No	No	No	No	Yes	No	No
Soil (subsurface e.g., >2 ft)	No	No	No	No	No	No	No
Air (outdoors)	--	--	--	--	--	--	--

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

__X__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Groundwater: The shallow groundwater is not used for potable water in the area, and is not used for irrigation. There is no complete exposure pathway.

Surface Soil: Numerous signs were posted to warn potential trespassers to "keep out", that this was an environmental contamination investigation area. The broken clay tiles act as the surface soil. There is no complete exposure pathway.

Surface Water: The surface water on the site is in the drainage ditch at the south and west boundaries of the site. Recreational use of the water by trespassers on the site is highly unlikely due to difficult access, limited flow, and stagnation. In addition, the water drains to Marshall Wood Preserving Superfund Site. Numerous signs were posted to warn potential trespassers to "keep out", that this was an environmental contamination investigation area. The duration of exposure would be minimal. There is a potential complete exposure pathway for trespassers.

Sediment: There is limited access to the drainage ditch in which this sediment lies and little likelihood of a complete exposure pathway to trespassers. Numerous signs were posted to warn potential trespassers to "keep out", that this was an environmental contamination investigation area. The duration of exposure would be minimal. There is a potential complete exposure pathway for trespassers.

Subsurface Soil: The site is fenced and secured There is no current exposure pathway to subsurface soils. Numerous signs were posted to warn potential trespassers to "keep out", that this was an environmental contamination investigation area. There is no complete exposure pathway.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

X If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

Surface Water: Recreational use of the water by trespassers on the site is highly unlikely due to difficult access, limited flow, and stagnation. In addition, the water drains directly to Marshall Wood Preserving Superfund Site. Numerous signs were posted to warn potential trespassers to "keep out", that this was an environmental contamination investigation area. Due to the limited or no access, exposures would not be significant.

Sediment: There is limited access to the drainage ditch in which the sediment lies and little likelihood of a complete exposure pathway to trespassers. Numerous signs were posted to warn potential trespassers to "keep out", that this was an environmental contamination investigation area. Due to the limited or no access, exposures would not be significant.

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at thefacility under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by	(signature)	/s/ Greg J. Lyssy	Date	April 18, 2005
	(print)	Greg J.Lyssy		
	(title)	Senior Project Manager		

Supervisor	(signature)	/s/ Laurie King	Date	April 18, 2005
	(print)	Laurie King		
	(title)	Section Chief, 6PD-F		
	(EPA Region or State)	EPA Region 6		

Locations where References may be found:

EPA Region 6 RCRA Technical File: Site Inspections, PR/VSI report, enforcement letters, and corrective action letters.

Contact telephone and e-mail numbers

(name)	Greg Lyssy
(phone #)	214-665-8317
(e-mail)	lyssy.gregory@epa.gov

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.